

REMARKS

Claims 1 to 30 are pending in the application, with Claims 7, 8, 14, 15, 19 and 26 having been amended, and with new Claims 27 to 30 having been added herein. Claims 1, 8, 15, 27 and 29 are the independent claims herein. Reconsideration and further examination are respectfully requested.

As an initial matter, Applicants thank the Examiner for the indication that Claims 1 to 7 are allowed and that Claims 9, 10, 14/9 and 14/10 contain allowable subject matter and would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 8, 11, 13, 14/8, 14/11 and 14/13 were rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 5,946,523 (Fujioka); Claims 15 to 20 and 25 were rejected under § 102(b) over U.S. Patent No. 4,553,033 (Hubble, III); Claims 15 to 17, 21, 22, 24, 26/15, 26/16, 26/17, 26/21/ 26/22 and 26/24 were rejected under § 102(b) over U.S. Patent No. 5,778,280 (Komiya); Claims 12 and 14/12 were rejected under § 103(a) over Fujioka in view of U.S. Patent No. 5,896,472 (Takayama); and Claims 23, 26/18, 26/19, 26/23 and 26/25 were rejected under § 103(a) over Fujioka in view of Hubble, III. Reconsideration and withdrawal of these rejections are respectfully requested.

Turning to specific claim language, amended independent Claim 8 is directed to an image sensing device which includes light source means, illumination means for irradiating, with a light beam from said light source means, a recording member on which an image is formed, and imaging means for forming, onto a surface of a light receiving means, the image on said recording member, said image sensing device detecting the image on the recording member on the basis of a signal obtained by said light receiving

means, wherein when said recording member has a specular reflection surface, a stop is provided to a position to be substantially optically conjugate with the light emitting point of said light source means.

The applied art, namely Fujioka, is not seen to disclose or suggest the foregoing features of amended independent Claim 8. In particular, the applied art is not seen to disclose or suggest imaging means for forming, onto a surface of a light receiving means, the image on the recording member, the image sensing device detecting the image on the recording member on the basis of a signal obtained by the light receiving means, wherein when the recording member has a specular reflection surface, a stop is provided to a position to be substantially optically conjugate with the light emitting point of the light source means.

In general, Fujioka is seen to be concerned with a printing apparatus that includes a toner developing quantity detection unit which optically detects toner developing quantities of color component toner marks which are transferred onto a belt. (Fujioka, abstract; Figure 7; and column 2, lines 26 to 55). As seen in Figure 10 of Fujioka, light receiving device sensor 106 is shown to be disposed at an angle of exit in relation to surface 12 for receiving light from light emitting source 100 which is disposed at an angle of incidence with respect to surface 12. (Fujioka, Figure 10; and column 12, lines 11 to 37). Although light emitting source 106 of Fujioka is seen to be optically positioned for reflection of light from light emitting source 100, nowhere is Fujioka seen to disclose or suggest that an imaging means is provided for forming an image on a recording member wherein when the recording member has a specular reflection surface, a stop is provided to a position to be substantially optically conjugate with the light emitting point

of the light source means. In this regard, nowhere is Fujioka seen to provide a stop based on when the recording member has a specular reflection surface, much less a stop which provides a position substantially optically conjugate with the light emitting point of the light source means. In addition, as seen in Figure 10 of Fujioka, the angle of incidence θ_1 is different from the exit angle θ_2 because the light emitting device 100 is a spread light type, whereas the present invention uses specularly reflected light. Accordingly, Applicants submit that light emitting device 100 of Fujioka cannot be seen to be defined as optically conjugate with light receiving device 106 because light emitting device 100 is a spread light type.

The other references, Hubble and Komiya, are not seen to remedy the foregoing deficiencies of Fujioka as a prior-art reference. Accordingly, amended independent Claim 8 is believed to be in condition for allowance, and such action is respectfully requested.

Amended independent Claim 15 is directed to an image sensing device which includes light source means, illumination means including an irradiation lens for irradiating, with a light beam from the light source means, a recording medium on which an image is formed, and imaging means including an imaging lens for forming, onto a surface of a light receiving means, the image on the recording medium, the image sensing device detecting the image on the recording member on the basis of a signal obtained by the light receiving means, wherein at least one of the surface of the irradiation lens and the imaging lens on the recording member side is flat.

The applied art, namely Hubble and Komiya, is not seen to disclose or suggest the foregoing features of amended independent Claim 15. In particular, the applied

art is not seen to disclose or suggest an illumination means with an irradiation lens, and an imaging means with an imaging lens, wherein at least one of the surface of the irradiation lens and the imaging lens on the recording member side is flat. According to this feature of amended independent Claim 15, a benefit is provided that cleaning of contamination by toner, and other materials, is enabled without causing unevenness in the wiping of the lenses. On the contrary, the irradiation lens 74 and imaging lens 76 shown in Figure 3 of Hubble are seen to have curved surfaces. (Hubble, Figure 3; and column 4, lines 34 to 44). Neither are Fujioka and Komiya seen to disclose anything that would remedy the foregoing deficiency of Hubble as a prior-art reference. Accordingly, amended independent Claim 15 is believed to be in condition for allowance, and such action is respectfully requested.

With respect to newly-added independent Claims 27 and 29, both claims include at least the feature that the light source means, or the light receiving means, is provided with a moving mechanism capable of displacing to an arbitrary position. Komiya was cited in the Office Action; however, Komiya is only seen to disclose movable registration detecting portions 459 and 460. (Komiya, Figure 40; and column 32, lines 25 to 58). In particular, registration detecting portions 459 and 460 of Komiya are merely seen to detect scars on the conveyor belt and are movable in the main scanning direction. (Komiya, column 23, lines 38 to 58). However, nowhere is Komiya seen to disclose or suggest that a light receiving means is provided with a moving mechanism capable of displacing to an arbitrary position, or a light source means which is provided with a moving mechanism capable of displacing to an arbitrary position. Accordingly, newly-added independent Claims 27 and 29 are also believed to be in condition for allowance, and such action is respectfully requested.

The other pending claims in this application are each dependent from the independent claims discussed above and are therefore believed patentable for the same reasons. Because each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 C.F.R. § 1.56, Applicants respectfully direct the Examiner's attention to U.S. Patent No. 6,285,849, which is listed below on the attached Form PTO-1449, and of which a copy is enclosed.

Inasmuch as the subject application has received an Office Action on the merits but has not yet received either a final action or a Notice Of Allowance, this Information Disclosure Statement is timely filed under 37 C.F.R. § 1.97(c) and is accompanied by the \$180.00 fee specified at 37 C.F.R. § 1.17(p). The Examiner is urged to study this information in its entirety and to form an independent determination of the materiality of the information to the claimed invention. Additionally, the Examiner is requested to indicate that this information has been considered by initialing the appropriate portion of Form PTO-1449.

CONCLUSION

Applicants' undersigned attorney may be reached in our Costa Mesa, CA office at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



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Application No. 09/922,643
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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

7. (Amended) An image forming apparatus including an image sensing device according to claim [any one of claims] 1 [to 6], wherein said image forming apparatus includes a plurality of image bearing members and forms a color image by using said image sensing device.

8. (Amended) An image sensing device comprising:

light source means;

illumination means [including an irradiation lens] for irradiating, with a light beam from said light source means, a recording member on which an image is formed; and

imaging means [including an imaging lens] for forming, onto a surface of a light receiving means, the image on said recording member, said image sensing device detecting the image on the recording member on the basis of a signal obtained by said light receiving means,

wherein when said recording member has a specular reflection surface, a stop is provided to a position to be substantially optically [at or close to a position to be] conjugate with the light emitting point of said light source means.

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14. (Amended) An image forming apparatus including an image sensing device according to claim [any one of claims] 8 [to 13], wherein said image forming apparatus forms a color image by using said image sensing device, and
wherein said image forming apparatus includes a plurality of image bearing
members.

15. (Amended) An image sensing device comprising:
light source means;
illumination means including an irradiation lens for irradiating, with a light beam from said light source means, a recording medium on which an image is formed; and
imaging means including an imaging lens for forming, onto a surface of a light receiving means, the image on the recording medium, said image sensing device detecting the image on said recording member on the basis of a signal obtained by said light receiving means,
wherein at least one of the surface of said irradiation lens and said imaging lens on
said recording member side is flat [said irradiation lens and said imaging lens are formed integrally with each other and made of a same material].

19. (Amended) A device according to claim 15, wherein [at least one of the surface of] said irradiation lens and said imaging lens are formed integrally with each other and
are made of a same material [on said recording member side is flat].

26. (Amended) An image forming apparatus including an image sensing device according to claim [any one of claims] 15 [to 25], wherein said image forming apparatus forms a color image by using said image sensing device, and
wherein said image forming apparatus includes a plurality of image bearing
members.

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